

AN
EXPLANATION
OF THE
History of the Earth
FROM THE
BEGINNING OF
THE WORLD
TO THE PRESENT
TIME
BY
J. H. L. and others.
LONDON:
Printed and Sold by
G. G. and J. H. L. and others
in the Strand, near St. Dunstons Church.
1795.

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K. B. L. A. and Others

PLATE 1

This book is
for Officers of the
Army and Navy
and Air Force
and is published by
the War Office

3862.83

Y O D W O E

Printed for the Government by the Government Printer, Ottawa, Ontario.

PREFACE.

IT may not perhaps, for some Reasons, be improper in it self, or unacceptable to the Reader, to have a short History of the Occasions and Methods of the discovery of the several Particulars in the New Theory; and to see by what steps I proceeded in that matter: that at once I may claim to my self what Interest or Right I really had in the same; and it may appear how far, and in what manner any other Persons or Opportunities were concern'd therein: and at the same time the Reader may perceive how little Affinity there is between a bare Hypothesis, the product only of the Wit and Skill of the Inventor, and the several Branches of a Theory in which the foregoing Qualifications were not necessary, and so can or ought to be very little consider'd therein. To waive therefore any more words by way of Introduction, I shall come to that Account it self, which is the single Subject of this Preface.

The Reader is therefore to know, that ever since I saw the *Unversary*, and began to relish the New Philosophy; I mean particularly the Cartesian, together with some other later discoveries of a more solid nature, I insensibly fell into an exceeding liking of the main part of Dr. Burnet's Theory of the Earth; and thought my self never more pleas'd than in a repeated perusal of so ingenious and remarkable a Book. Insomuch that upon my being to perform the accustomed Exercise in the Schools for my first degree, one of my Propositions was in Vindication of the same. This

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good liking continued with me a great while after; till my deeper researches into Mechanical Philosophy, and the Discoveries contain'd in Mr. Newton's wonderful Book began to convince me of the Inadvisableness of many of the particulars; and that the whole Scheme, as it then lay, could not be justify'd by the Principles of sound Philosophy; nor did it, upon better consideration, agree with the accounts in the Holy Scriptures. Yet still several of the particulars, especially the Perpetual Equinox before the Flood; and the Situation of the Earth upon a Fluid Abyss, seem'd very reasonable, and very agreeable to the Accounts Sacred and Profane of those ancient Ages of the World. And as I have never yet found reason to alter my Opinion about the latter, when duly stated; so I was in great perplexity how to believe the former; since I found the way of changing the Position of the Earth's Axis in Dr. Burnet, by the Laws of Mechanism plainly impossible; on which yet the before mention'd Opinion did in great measure depend.

In this doubtfulness of Mind, a Thought came into my head (since which I believe 'tis now at the least five or six Years.) That from Mr. Newton's Discoveries 'twas certain that a Comet might pass near the Earth; and that also in case it pass'd near enough and in a certain trajectory, it might alter the Position of the Earth's Axis, as now the Sun does, backward and forward every Year: (tho' this be a thing only known to those who have made some progress in Mr. Newton's Book, and not here to be explain'd for every Reader.) I thought it therefore worth my while, after a long time, to try whether, by this means, if a Comet, in the most advantageous manner possible came near the Earth at the Deluge, the Earth's Axis could be thereby chang'd from a Parallelism to
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that of the Ecliptick, to the Obliquity of $23\frac{1}{2}$ Degrees, which it has had ever since that time. This calculation I try'd about November or December 1694. But could by no means perceive that the hundredth part of the present Obliquity was by any such Method to be accounted for. Which occasion'd therefore my laying aside that Hypothesis I had so long before been fond of, and desirous to establish; and permitted my Thoughts a greater freedom about the occasions of the Deluge, than Dr. Burnet's Notions had allow'd me before.

Not long after this, considering the Nature of Comets, and viewing sometimes Mr. Newton's Scheme of the last famous one among us, which my self could easily remember, in 1680 and 1681. A Thought came into my mind, which in discourse I mention'd to a very Learned Friend, that 'twas possible the Tail of a Comet might afford Water at the Deluge, and that the confused Mass of Air, and irregular Streams from the Comet's Atmosphere or Tail might afford a fair Solution of that Phenomenon I had been so desirous of the Perpetual Equinox to account for before. I mean the unhealthy state of our Air and Earth at present, and the effect thereof, the shortning of Mens lives ever since the Deluge. These were my first and crude thoughts of this matter; which tho' the particulars were but ill adjust'd, and uncertain; yet gave me an eagerness of considering the matter farther, and occasion'd all the subsequent discoveries which are contain'd in the New Theory. And truly, upon a little farther consideration; now the hint was once given, I soon found that a great many of the Phenomena of Nature, and of the Deluge, did of their own accord fall in with my Notion; and that if on its Original Formation, the inward constitution of the Earth were suppos'd a Fluid, (as I had long done,

Dr. Bentley.

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tho' on no good consideration of the nature of that Fluid;) and if withal the Inequality of the Earth's Surface at first, which Dr. Burnet positively deny'd, could be Mechanically accounted for, I then imagin'd I could go a great way in a new Hypothesis of the Mosaic Creation, and the Deluge. At which time, about Easter 1695, Dr. Woodward's Essay was made publick; and read by me with a great deal of eagerness and sollicitude, to see whether the History of the Phenomena of the inward parts of the Earth would accord with, or contradict those Notions I began to entertain about the Points before-mention'd. And as a little before I had observ'd, that 'twas highly reasonable to suppose a Fluid nearer the Center of the Earth to be heavier than those upon its Surface; yea than that Orb of Earth which was above it; so, as I was reading Dr. Woodward's Essay, That Axiom also in Hydrostaticks, that Bodies according to their different specifick Gravities will sink into Fluids in different proportions, and so be extant in different degrees; came into my thoughts; upon what occasion I know not: and together, eas'd me, to my no small satisfaction, of the Difficulties which before stopp'd my progress in that Hypothesis my Thoughts were so busy upon.

Having now got the main strokes of the New Theory, so far as concern'd the particular Phenomena of the Deluge at least, in my mind; and not finding the Observations in Dr. Woodward's Essay wholly disagreeable to the same, I began to write my Thoughts, and digest 'em into as regular a method, as the warmth of my Temper, still increas'd by the daily addition of new, and to me very surprising discoveries, would permit. About which time I consider'd, that if the Comet pass'd by the Earth at the Deluge, it must alter the annual Motion and Period,

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from the Universality of the Law of Attraction, so fully demonstrated by Mr. Newton. Whereupon I went to try whether, if the Earth mov'd in a Circle before the Flood, the becoming Eccentric at that time would account for, and correspond to those $5\frac{1}{2}$ odd Days, which we now have in ours above 360, an even and regular Year, which I was willing to imagin the Antediluvians had enjoy'd. But as this Calculation fail'd my present Hopes, so it discover'd a Coincidence vastly more remarkable; namely, that the ancient Solar Year, if the Earth's Orbit was Circular, exactly corresponded with the present and ancient Lunar, by reason of the accurate Equality and Agreement of the Eccentricity of the Earth with the Lunar Epact. Which Coincidence I must own did in the highest degree please and satisfy my Thoughts; and gave me some assurance of the truth, as well as probability of my main Hypothesis.

Soon after this I discern'd another most remarkable way of trying the Reality of the Passing by of the Comet; namely, to see whether the Place of the Perihelion, at which I perceiv'd the Deluge must, on my Hypothesis, begin, would accord with the Time of the Year deliver'd by Moses. This, with no small fear of a disappointment, I try'd: and having only I think Tycho's Tables of its Motion then by me (in Mercator's Astronomy,) I consulted it accordingly, and to my still higher satisfaction and assurance found the Astronomical Tables, and the Mosaick History, exactly to agree in the same Time of the second Month from the Autumnal Equinox.

Soon after this I found out another still more sure way of discovering the time, nay the very day of the beginning of the Flood from Astronomy, and so of trying whether the former coincidences were by chance, or occasion'd by the reality of that Passage of the Co-

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met to which I ascribed the Deluge. Now in this case, tho' I saw the necessity of the day of the Cornets passing by being near the New or Full Moon, yet I was not then well enough vers'd in Astronomical calculations readily to try this matter; and besides did not know how many years ought to be accounted since the Deluge, because of my own unacquaintedness with the point then, and of the variety of Chronologers Sentiments about it. However, since I look'd upon the most Learned, the Lord Bishop of Coventry and Lichfield, (whose most free, ready, and generous Assistance in all my Studies, I must own with the highest Gratitude) as by common consent, the most Accurate Chronologer of this Age; and did remember that in a Bible which lay in his Study I had formerly observ'd the Year of the World 4004; set in the beginning of St. Matthew: I suppos'd his Lordship's opinion to be that from the Hebrew Verity, the Christian Era, began Anno Mundi 4004. Upon which Supposition, tho' with great diffidence of mistake on every side, I try'd to find the time of the Moon corresponding to the beginning of the Deluge; and found it to be as near the new as my Hypothesis requir'd. Which exceedingly pleas'd me at the present, but gave me a new Sollicitude lest it should overturn all in case I had made any mistake in the Chronology, since the Deluge; which then at best only depended on the memory of a number I had occasionally seen before; tho' since I have received full satisfaction in the point. In great concern therefore I went down to his Lordship's Lodgings, and with no small fear, enquir'd of the truth of what I had remembred, and of his Lordship's opinion touching the number of Years according to the Hebrew Verity, till the Christian Era; And found I was exactly right in the whole, to my no small encouragement, and to my greater assurance of the
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certain truth of that Hypothesis which by so many trials had, beyond expectation, approved it self to me.

After all this I discover'd, as I thought, that the Ocean was an effect and remains of the Waters of the Deluge; and that the passing by of the Comet would distinguish the Earth into two Continents, and interpose an Ocean betwixt 'em. But here in my first thoughts I was stop'd a little, and fear'd that this last Hypothesis would overturn my other; because the Position of the Centers of the two Continents would determine the time of the Year when the Comet pass'd by; and that, as my first thoughts represented to me, in a downright opposition to my other accounts of that matter. But it proved quite otherwise, for as all my former fears had come to nothing, but ended to my utmost satisfaction; so on a more exact consideration I found this position of the Centers of the two Continents so exactly agreeable with the time of the beginning of the Deluge stated by the other methods, that instead of contradicting, I perceiv'd, with pleasure enough, it highly confirm'd and secur'd the same. And then, as to the bigness of the Comet, and the several other coincidences all along, they generally occur'd readily to my thoughts as I went on; and so need not have any particular notice taken of them in this place.

But I think somewhat before I had proceeded so far, I drew up a hasty imperfect draught of my notions, to communicate to some Friends, and especially to Dr. Bentley immediately, and to Mr. Newton afterwards, whom I accordingly waited on, the first at London, and the other as I (in attendance on my Lord Bishop of Norwich) pass'd by Cambridge; which was, I think, about Whitsontide, the same Year 1695. And having now by the Hints and Directions I received from these Learned Persons, especially from the latter; and by a more accurate review
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Coroll. 3,
& 4. post
Solut. 59.

and reconsideration of the whole, much corrected, improved, and enlarged my Hypothesis; and took in several Particulars more as they occur'd to me; especially that most remarkable one about the lowness of Caucasus now, and its greater altitude at the Deluge, on which I lay so much stress in my Book, I found my self prepar'd to digest the whole into a Systeme, and began to make it ready for Mr. Newton's Review, and to think of putting it into the Press. Only I was still somewhat puzzled about Dr. Woodward's Observation of the time of the Year in which all the Plants buried at the Deluge were lodg'd in their several places; whence he had stated the commencing thereof half a Year differently from that which all my ways of determining it assur'd me of.

In this difficulty I wrote to the Doctor for a resolution of some Queries relating to those Plants, and received such an answer, part of which is in my Book, as gave me sufficient foundation, I thought, to clear the difficulty, and turn'd what was before a shrewd Objection against, into a real attestation to that time of the Year which my Hypothesis assign'd in the Case. Being thus clear of my difficulties, I went on with my work with considerable application, and no small degree of pleasure and satisfaction; till I brought it to an intire Systeme, and sent it to Cambridge for Mr. Newton's final Review and Correction. Which being over, and communicated to me, I soon brought it into the present form, and only added that Preliminary Discourse, which partly on another occasion, I had in good measure finish'd before; and which I found would be but a necessary preparation to some points of great moment in the following Theory. This is a true and faithful account, as far as my memory can now recollect the Particulars, of the progress of this matter, and of the occasions of the several discoveries contain'd in the New Theory.

'Tis

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'Tis true, when I brought my Manuscript to Mr. Newton the first time, he told me (what I never heard syllable of before; and of which I know nothing particularly to this hour:) that he had heard, That Mr. Halley (a Person sufficiently and deservedly Eminent in the Learned World) had propos'd Reasons at Gresham-College why a Comet could not cause the Deluge. But when I ask'd him farther, whether he knew the Nature of that Hypothesis Mr. Halley set up, and oppos'd: He told me he did not, so far as to be able, to give me any manner of satisfaction; but desir'd me to apply my self to Mr. Halley if I had a mind to be farther inform'd about it. Which to this day I have not done, and so could not possibly make any use of any Notions he either propos'd, or refuted in this matter, as I am told some persons have been willing to suggest, and which, if it had been so, I should as freely own as I do all the other Hints and Advantages I have had from any in this matter. And I am under less temptation than another in this case: for however remarkable I look upon several of the Discoveries in the New Theory; yet I think the Praise belonging to the Discoverer not so great as lesser Points, requiring a deeper Skill in the Author, may justly deserve.

The Case seems to me to be this. Tho' many Wise men, with variety of Keys, belonging to other places, should long puzzle themselves in vain in the opening of a Door: and One of a worse character, who had the good fortune to find the true one, should with ease let them into the Closet; yet I think He, who upon this should value himself, and expect a great degree of Commendation, would thereby only demonstrate that he deserv'd but a very little share of it. The Application is easy; and tho' I perhaps do believe that I have found a Key, and have open'd and explain'd
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some Points of consequence, in the New Theory: Yet as I heartily own and adore the Divine Providence in all the Success of my Enquiries, so I, with the before-mention'd Thoughts, am under little temptation of Envy'ing any one their share in these Discoveries. And I can safely say, that I have been more than ordinarily cautious not to mention any thing, which was the product even of my own Thoughts, if I found that others had also took notice of it, without making such mention of them as the Case did require: And whatever Imputations I may otherwise deserve, I have long since resolved to give no occasion that any one should take me for a Plagiary.

Lowestoft, Suffolk.

Sept. 2. 1698.

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AN
ANSWER
TO
Mr. Keill's Remarks
ON THE
New Theory of the Earth.

SINCE I perceive the Force of my Reasoning has had so great an Influence on Mr. Keill, as to obtain his Allowance of the Passing by of a Comet at the beginning of the Deluge, which is the main Point I contend for; and which once establish'd, the rest (as I think I can still demonstrate) must, when fully understood, be granted also; 'Tis a little surprizing that he of all Men should in Publick appear against me. And truly I am ready to hope I have but few competent Judges besides Mr. Keill, who, yielding me that main Point of all, do yet reject my Account of the *Phænomena* of the Deluge; which are, I think, but natural Consequents of such a Concession. But to let that pass; this I am pretty secure of, that if Mr. Keill were not more deeply engag'd against my design by a peculiar fondness he seems to have

have for the Introduction of unaccountable Miracles on all occasions, than by any other decretory Objections against me; 'tis probable he would rather privately have communicated his Difficulties, and by Letter desir'd the Resolution of them, than have taken this publick Method of writing Remarks on the *New Theory*, and leading it as it were in Triumph after the Conquest he had been gaining over the *Old one*. But not to expostulate this procedure with Mr. Keill any farther; I must, before I come to Particulars, both openly take notice of his Civility and Fairness to me, in that he has been pleas'd, amidst his somewhat severe Reflections on the Mistakes of others, to deal with me kindly and candidly even whilst he looks upon me as guilty of not a few Errors in my Reasoning; And at the same time faithfully promise him, that I will cautiously avoid those dis-ingenuous and studied Evasions which, as he truly observes, are but too often made to pass for Answers to the shrewdest Objections. Neither will I refuse at any time, on due conviction, to own my Mistakes; and as publicly to retract my Errors, as I have publicly profess'd them. But to wave any farther Preliminaries, and to come to the Particular Objections.

Remarks,
Pag. ult.

Pag. 179,
&c.

Gen. 1. 2.

(1.) *It is alledg'd that my first Hypothesis, viz. That a Chaos is the Atmosphere of a Comet, can't be true, because the former is by all agreed to have had Darkness on the face of its Abyss; whereas the latter is certainly a transparent Fluid; and so has the Light, if not of its own Central Body from within, yet at least of the Sun from without, freely admitted into it.*

For

For Answer to which I affirm, That as to the Central Solid, since a Comet is not capable of a Change to a Planet, or Earth till a long time after its *Peribolion*, or indeed till 'tis return'd from the vast and cold Regions beyond *Saturn*; I wonder Mr. *Keill* should fear it would be not too warm only, but so vehemently hot as to be light also: Iron and other Solids will be sufficiently hot a long time after their Light or visible Fire is gone; and I don't imagin that Comets descending to the Sun can be so much hotter and brighter than such a cooling Ball of Iron as to illuminate the Regions about them for many hundred, if not thousand Miles together. And then as to the Sun, which is allow'd to shine through the Atmospheres of Comets while they remain such, if Mr. *Keill* can prove that the Words of *Moses* refer to the past Ages, and not to the time of the commencing of the Creation, to which principally if not solely All Commentators I think refer them; it will be to Mr. *Keill's* purpose; but if not, here is no valid Objection against this part of the *New Theory*. For as to the word *Abyss*, which was once dark, and afterward enlightened, I see no reason to restrain it at this time to the Dense Fluid alone; (whither indeed the Light could not penetrate after it was once intirely and distinctly collected together below the Earth;) But by it is, I think, in this place meant all that heterogeneous and hitherto muddy Fluid which was beneath the Earth's future Surface; or peculiarly below that place where *Adam* was to be made, and where the Spectator in this historical Journal of the Creation is suppos'd to have been. And I believe there can be no reason

to refuse this Interpretation, nor consequently to create hence any difficulty against my Hypothesis relating to this matter. What comes to be next consider'd, is this :

P. 182, &c. (2.) If we proceed Mechanically and Gradually in the Formation of a Planet from a Comet's Atmosphere, we must allow the whole Subsidence to be as leisurely, and to proceed by the same steps, that the violence of its Heat decreases; which will then be compleated not in six Days, or single Years, but scarcely in as many Centuries; and the Opake parts will take so much time in descending and composing the Crust of Earth, that the Sun might always as freely almost penetrate the Upper Regions of the Atmosphere at least, if not farther, as it does the whole Atmospheres of Comets while they are within our Observation.

Now in Answer to this; which I own to be an Argument of Good force, and to deserve Consideration; I say, That if we found from the Phenomena of Comets in their descent towards the Sun, after their long Periods to cool and settle in, since their last Perihelia; that they had no Atmospheres, but that the Masses which formerly compos'd 'em were subsided and become like the Surface of Planets, then indeed this Reasoning were unavoidable: (Tho' even in that case this would only enforce a still larger Interpretation of the Days of Creation than I allow, without any farther harm to the rest of the Theory.) But seeing the contrary is evident from Astronomical Observations, this cannot affect my Hypothesis. It must indeed from hence, I think, follow, that all the same Laws, Properties, and Operations of Bodies which we find

find establish'd here on Earth, do not so universally obtain in the Atmospheres of Comets: which I confess the consideration of their *Phaenomena* has always oblig'd me to believe, and which any one who reads a Page or two may easily see I was aware of when I wrote my *Theory*. The Introduction of the particular Laws, Powers, and Properties of Bodies with us, (that of Universal Gravity ever excepted;) being in my Opinion there explain'd the Immediate effect of the *Spirit of God*, who is said to have moved on the face of the Waters at the very beginning of the Mosaick Creation. And so much I hope may suffice to shew the inconsequence of this Argument; and that my Answer is no present Evasion of an emergent Difficulty, but my settled Thoughts ever since I wrote the *New Theory*. And the consideration of this matter will afford a like Answer to what is with some shew of Strength urg'd in the next place,

(3.) If the Sand, Stones, and Gravel of our Earth were formerly in the Atmosphere of a Comet, which is once in every Revolution prodigiously scorcb'd by the nearness of the Sun, they must formerly have been melted, become transparent, and been turn'd into Glass; because such is now the natural Effect of a violent degree of Heat with us in the like case. I answer:

But then, as we have just now observ'd, we can't universally reason from the State and *Phaenomena* of a Planet after its Formation, to the Chaotick Condition it was in before. Tho' in truth we do not need this Answer in the present Case: For neither is it certain, that because

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such gross and compounded Bodies on Liquefaction become Glass, that therefore their first elementary Atoms, or primary Dust, scatter'd separately in the vastness of the Atmosphere, would then have been subject to the same Mutation. Nor if that were granted, does Mr. Keill know that either our Earth, or the Comet that came by at the Flood, was one of those which approach so near the Sun, as that the Effects he mentions must be unavoidable in them, tho' they should be so in others, whose *Perihelia* expose them to the utmost degree of Scorching imaginable. But to proceed.

P. 185, &c. (4.) 'Tis Objected that there is no need of a Central hot Solid to solve the Origin of Springs, and such other Phenomena of Nature, they being better accounted for by other means; nor if there were a Central hot Solid, could its Heat be here sensible, because the Heat of a very vehement Fire can't penetrate a stone Wall of a few Feet in thickness.

Now as to the Reality of an internal Heat, below the influence of the Sun, in the Bowels of the Earth, 'tis undeniable matter of fact, and must be accounted for, whatever become of the Origin of Springs, or the like *Phænomena*; and so it may be needful to admit a hot Central Solid, even tho' such Effects as I with Dr. Woodward am willing to ascribe to an Heat, should be deducible from other causes. Tho' truly I don't think that account Mr. Keill refers to here of the Origin of Fountains so universal, as to stand in no need of subterranean Vapours: For which, tho' I believe I can give good reasons; yet I don't think it at all necessary at present

present to engage in so long, and somewhat foreign a Controversy. But then as to the confinement of heat by a Wall of no great thickness, 'tis a very different case from our Earth: where the Heat ever ascending upwards, has first a Fluid to heat; which when hot in one place, will thereby be heated throughout; and after that, has a crust of Earth, somewhat loosely put together, and multitudes of *Perpendicular Fissures* quite through it, with other pores and *horizontal Fissures*, to permit the passage of the warm Steams to the upper Regions. Besides all which, the Heat is not merely deriv'd anew from the Central Solid; but has been, by its means, ever preserv'd since it self was deriv'd from the Sun at the ancient *Peribelia*. All which circumstances do so much alter the case, that if Mr. Keill had been aware of them, I hardly suppose he would have much insisted on this as a mighty difficulty in my Book.

We are now come to the principal doubt of P. 189. all, which relates to my Interpretation of this Fourth day's Work, so as to exclude the Original Creation of the heavenly Bodies at that time. Wherein Mr. Keill thinks I have not exactly observ'd my own First *Postulatum*, but receded from the Letter of the Scripture, without sufficient Reasons for so doing. As to which Point, I must still own that I am by no means of Mr. Keill's mind; and since he only delivers his opinion without producing his particular Reasons, or enervating any of those I had so largely given for what I asserted, I see no occasion for a farther Vindication at present; and so shall still leave that matter to the consideration of the free and impartial Reader. However, since

here occur some particular Difficulties, I shall take notice of such of them as have not already been consider'd.

Pag. 190,
191.

(5.) *Tis objected, That because Comets have no secondary Ones moving about them, the Moon, our secondary Planet, must either have been really created, or at least brought into our Neighbourhood on the fourth Day; which being therefore the importance of the word Made with relation to one, ought to be taken in the same sense when referr'd to the other of the heavenly Bodies: and so my Interpretation of this day's work, which is built on other Principles, must be a mistake.*

Now, tho' I might ask why the Moon might not as well have come into our Neighbourhood before, as just upon this day, in case she had not of old been our Companion? Yet to put this matter to another issue, I desire Mr. Keil to prove that no Comets have any *Satellites* revolving about them. For my part, I think the Observations we have yet made about Comets are not nice nor numerous enough to determin this Point. Nay rather, what the Histories of many Comets relate about the various Shapes and Figures they have sometimes appeared under, seems to me hardly accountable, unless we allow lesser Comets to have been Companions to the greater, and by their various Positions and other circumstances to have occasion'd some at least of that variety and strangeness in many of their *Phænomena*, which not a few Accounts confirm to us.

(6.) *'Tis*

(6.) 'Tis alleg'd, that before the Sun became visible, 'tis not supposable that on the second Day of the Creation his Heat could raise Vapors enow to fill the Seas, Lakes, and Rivers in the primitive Earth; on which yet my account of their Original is entirely built. P.191, &c.

Now not to examin the Computation which Mr. Keill makes use of about the quantity of Water rais'd and falling in a year, which I suppose may be accurate enough: Nor to enquire how little the Heat of the Sun may be diminish'd on the Earth by so few Vapors collected together, as may yet be sufficient to hide his Body from our sight; I would ask Mr. Keill, What if the Sun in half a year did not draw up Vapors enow to make the thousandth part of the present Ocean? What is this to me? who assert there was no Ocean till the Deluge, nor no other than small Seas and Lakes, perhaps not containing much more than a thousandth part of the Water that is now upon the Earth. And this is so visible in my Book, that I prove there was before the Flood no Ocean, by this very reason, That the Sun could not draw up Vapors enow in half a years time to compose so vast a collection of Waters. Which if Mr. Keill had been pleas'd to observe, he might have spar'd me the pains of answering such an Objection. Solur. 7. Corol. 2.

Having proceeded thus far in my own Vindication, I must now, according to my promise, be so ingenuous as to own that much of Mr. Keill's Reasoning against my Third Hypothesis of an Only Annual motion of the Earth before the Fall, and so of a half year of Cold and Darkness together, (without a greater freedom of

thought than I expect in most Readers) taken as 'tis at present laid down in my Book, is strong and forcible, and unless I fly to such Evasions as I have resolv'd against, not easily to be avoided. But then I must desire Mr. Keill to do me so much Justice, as to remember that I told the Reader I had somewhat farther to say in the case; which might therefore, by a private enquiry, have been first understood before this whole Proposition, of so great Importance, had been absolutely rejected. My Words are these:

P. 102.

" This, when rightly consider'd, may save me
 " the labour of returning any other Answer to
 " the particular Difficulty here mention'd; and
 " of enlarging upon several other things which
 " might be said, to great satisfaction, on the
 " present occasion. That upon this Opportunity therefore I may fully clear my Hypothesis from this Obvious, Popular, and not inconsiderable Objection, I shall endeavour to set this matter in a new and clear Light. And tho' I do not my self see any plain Necessity of altering any thing I have said on this Head; yet because I have been long inclinable to think the following Hypothesis very probable (as 'tis certainly very agreeable to the *Phænomena* of Nature, and the main Principles of my *Theory*) and very likely to satisfy the difficulties of abundance of Readers, I shall more fully explain my thoughts in this case, and thereby shew that all the Arguments that are levell'd against this Branch of the *New Theory* are unconvincing.

Notwithstanding therefore I have already, and do still assert that the *Original Orbits* of the Planets, and particularly of the Earth were perfect Circles; meaning by the *Original Orbits*, those
 in

in which they were to revolve immediately after they were intirely form'd, and were to be universally inhabited: Yet I must now add, what I at first had some imperfect Thoughts about, that this Reduction of the very Oblong and Eccentric Orbit of our Earth whilst it was a Comet, into a Uniform, Concentric and Circular one, which I suppose it had before the Deluge, may justly be allow'd to have been gradual, and not done at once: the greatest part at the Commencing of the Mosaick Creation, and the rest at the Commencing of the Diurnal Rotation afterwards. (As indeed the Diurnal Rotation could not Mechanically begin, I mean by the oblique Collision of a Comet, but that the annual Orbit would thereby be alter'd also.) Which being suppos'd; and that Providence adjusted all circumstances so as should be most to the advantage of Paradise; We shall then have the Earth revolving in a moderate *Ellipsis*, without any Diurnal Rotation about the Sun in the Space of a Year: (Tho' the *exact* length of that Year will not now be determinable:) A Day and a Year will be all one: We shall have that *Diameter* of the Earth which pass'd through Paradise, parallel to the longer *Axis* of that *Ellipsis* it revolv'd in: And withal, we shall have the place of Paradise, respecting the same fixt Stars with the *Perihelion* of the *Ellipsis*. Which being suppos'd, as the Circular Orbit is much the best for a Globe inhabited all round, that providing equally for the convenience of both Hemispheres; So is this *Elliptick* Orbit the best for a Globe inhabited but in one place, as the Earth was in the Primitive State; this providing peculiarly for the happiness of

that particular Spot where alone the living part of the Creation was to reside ; as on consideration will easily appear. Thus, for instance, the heat of the day-time would gradually increase before, and decrease after noon : but yet would never be violent ; because almost all the increase of the Heat by the Sun's rising above the Horizon still higher and higher in the Forenoon or Spring, would be prevented by his real receding from the Earth, and approaching nearer his *Apogæon* during the same time ; & *vice versa*, in the Afternoon or Summer ; which would render the state of the Air more equable and uniform, and less uneasy or inconvenient than any other method whatsoever. Thus also not only the Cold of the Night, (which by our then being nearest the Sun would be inconsiderable ;) but the Duration and Darkness thereof (two very severe and frightful *Phænomena* in my former Hypothesis) would be entirely avoided. For the whole Night would then bear no more proportion to the entire *Nυχθήμερον*, than in the *Ellipsis* the *Area* p B q bears to the whole *Area* H B G F : Suppose the Proportion of 1 to 6, which will amount to no more than two Months. Out of which Night-time, we must deduct the two *Crepuscula*, each of about half a Month, which reduces now the Darkness of the Night to a single Month : Out of which another half Month is to be still deducted for the Moon's being above the Horizon, and enlightening the Earth : So that at last, if the Moon's *Crepuscula* be at all allow'd for, we shall scarce have a single Week of pure Darkness in the whole Year. Which Hypothesis does at the first View so fully take off the popular Ob-

jections

jections made against me; and affords so easy and natural a Solution of the Difficulties urg'd by Mr. Keill; besides its peculiar Fitness to render the primary Animals, and particularly our first Parents happy, and their state to the utmost degree Paradisiacal; that I shall add no more in confirmation of it, but leave it to Mr. Keill's and the Intelligent Readers own Consideration. Only before I pass on, I cannot but take notice of a great mistake of Mr. Keill's about the quantity of Heat in the primitive Earth from my Hypothesis, which he reckons some hundred of times as great as in the present State: which I am sure must be a plain Error, and all its Consequences, which he from thence draws against me, without any foundation. The Heat *then*, for the light half year, being but the same quantity of Heat all at once; which *now* at times, and with interruptions we are partakers of. Which may deserve Mr. Keill's consideration and correction.

We are now come to the principal Part of my *Theory*, the Account of the Deluge of *Noah*: against which, 'tis objected by Mr. Keill,

(7.) *That the Presence of a Comet, tho' it would* P. 103, &c.
cause considerable Tides in the Seas above, yet it could not in the Abyss below the Earth: because this latter is pent in, and closely shut up within a thick and solid Crust of Earth, and has therefore no room to raise itself as the Waters of the Seas have.

Now in answer to this, I wonder how Mr. Keill comes to imagin the Orb of Earth to be so compact and solid a Sphere, as to be able to overcome the great Impulse, which on the
 Comet's

Comet's approach the Abyſs would make upon it? In my Hypotheſis, I am ſure, it had only the Conſiſtence of adjoining Columns ſinking down together into the ſame Fluid, and that extreemly broken, divided, and ſhatter'd at the commencing of the *Diurnal Rotation*; when great Numbers of Cleſts and *Fiffures* were every-where made through it, and the Orb by conſequence diſpos'd to a diviſion and ſeparation of Parts upon any conſiderable Impulſe whatſoever. One might almoſt as well aſſert, that a Floor of diſjoined Planks laid croſs the *Thames*, without any faſtneſs on either ſide could ſuſtain the force of the Tide, and prevent its Aſcent; as that our Cruſt of Earth, ſo cleſt and diſjoined as it was, ſhould be able to ſuſtain the force of the Tide in the Abyſs, and prevent its Aſcent, and thoſe Effects which would be conſequent thereupon.

P. 104, &c. (8.) 'Tis objected, that the Expanded Vapors deriv'd from the Comet, would, by paſſing through the Air, and its reſiſtence at their firſt deſcent, be all turn'd into Water; and ſo, tho' this may at once drown the World, yet it will not account for the long Rains of forty Days, to which the Deluge of Noah was principally owing.

Now in answer to this I ſay, That tho' much the greateſt part of the Vapors ſhould have been at firſt turn'd into Water, and ſo continued, yet 'tis hard that Mr. Keill will not allow many of them to eſcape the ſame; enow at leaſt to make a conſtant Rain for forty days together. I am ſure 'tis to me ſtrange, that ſo thin a Body as our Air, lying in ſo ſmall a compaſs about the Earth,

Earth, as the height of not very many Miles (for much higher 'tis so very thin as to be perfectly inconsiderable) should have the good luck to stop, arrest, and condense all and every part of so immense and swift a descending Column of Vapors as we have here to be consider'd. But besides, (not to question whether Mr. Keill's method of reducing Vapors into Rain-water be universal or not:) Let it be granted that these hot Vapors were at their first descent forc'd together; yet till that quantity of Heat which caus'd and continued their degree of Expansion in the Comet's Atmosphere or Tail were mightily diminish'd, and they become as cool as Vapors turning into Water with us, till then I say, whatsoever their first violent Motion might on the sudden produce, yet their own proper Heat would immediately rarify 'em again, and so elevate 'em to a proportionable height in the Air, and capacitate them to produce that continual forty days Rain, which appears to have had so great a share in the Universal Deluge.

(9.) 'Tis objected, That tho' a perforated Cylinder of Stone or Marble, pressing upon Water in an exactly equal Cylindrical Vessel under it, would thereby force it, or any lighter Fluid on its Surface through the holes upwards; yet the Pressure of the Additional Waters upon the Crust of Earth could not cause the Eruption of the Dense Fluid, or of any Waters lying upon it in the Bowels of the Earth, on several accounts; particularly because in the first case the Cylinder is specifically heavier than Water, but in the second the Orb of Earth is lighter than the Dense Fluid under it: which Mr. Keill supposes does wholly alter the case.

Now

Now in answer to this I say, If Mr. Keill desire it, I will put a Cylinder of Wood, which is lighter than Water, instead of one of Stone or Marble which is heavier; and I do not doubt of the truth of the Experiment in this case, if that will afford him satisfaction. But indeed I perceive by all Mr. Keill's Reasoning here, that he mistakes my Notion; and that 'tis but setting him right in this, and all his difficulties will vanish of their own accord. I say then, and I am sure Mr. Keill can't contradict it, that a lighter Solid will as truly press a Fluid heavier than it self, till it is sunk so deep as the known Law of *Hydrostatics* requires, as a solid that is Specifically heavier: And if by its closeness of texture, and want of room about it, it be hindered from really descending so far, it will continually press the Fluid, and force it upwards, or any way where there are any Holes and Fissures without an equal degree of pressure upon them. And this certainly is the present Case. Suppose the Columns of Earth at the beginning were 200 Miles in Depth in the whole, and taken together but half so Dense as the Fluid on which they rely'd; Then at the Mosaick Creation, when the *Strata* of the Columns were not yet consolidated, but every where previous to the Fluid, the several Columns would, as Mr. Keill well knows, sink 100 Miles into the Fluid, and the other 100 Miles would be extant above it. If now after the Consolidation of the *Strata*, when the Orb can't sink freely as before, a New addition be made at the top of each Column (whether of lighter or heavier matter 'tis all one) equal in weight

to two Miles of the same Column ; which is just the case of the Deluge : In this state 'tis evident that the pressure of two intire Miles of each Column, being so prodigiously great, must squeeze the Fluid upward through the Fissures (which were just open'd , and fill'd with Water to the height of perhaps 60 or 70 Miles , from the Neighbouring Earth Satur'd with the same) and thereby throw out the incumbent Water , and perhaps it self upon the Face of the Earth. And this the more easily, because the pressure was from the Water, which would lie chiefly in the Valleys, whilst the Fissures were mostly in the Mountains, and so above the Surface of the Cortex ; which otherwise by running into them, would a little stop the upward current, and retard the motion of the ascending Waters. Which things being , I think, undeniably true, and plainly express'd in my Book, I must be a little surpriz'd that one so well Vers'd in *Hydrostatics* as Mr. Keill, should be so perplex'd in this matter. All Mr. Keill's Demonstrations suppose either that not the Water on the Earth, but in the Fissures did contribute to raising the Fluid through them ; which I could not be so childish as to imagine. Or that the several Columns of Earth had free liberty , and could subside as far as occasion should be ; which I have in my Book, as well as here, shew'd they could not. Or that a pressure from a Column specifically heavier than the Fluid is necessary to raise it upward ; when 'tis evidently all one, though it be lighter. So that upon the whole, I think Mr. Keill might have spar'd those peremptory words which he uses in this point. "From all this it is demon-
stratively

Remarks,
P. 215.

“*fratatively* evident, that by no sort of pressure
“of the Incumbent Fluid, the Abyſs could be
“forced upwards to ſpread it ſelf on the Surface
“of the Earth. Which I hope on farther con-
ſideration he will think fit to retract.

P. 215, &c. (10.) *’Tis Objected, That whereas I derive at
leſt half the Waters of the Deluge from the Bowels
of the Earth, this is impoſſible; becauſe there can be
no Sphere or Collection of Waters between the Earth
and the denſe Fluid, which is the only place beſides, in
Mr. Keill’s Opinion, the Fiſſures themſelves, capable
of containing the ſame.*

In Answer whereto I cannot but ſay ’tis
ſtrange Mr. Keill ſhould look for Subterraneous
Waters every where elſe but where I always
plac’d ’em; in the pores and cavities of all the
lower Earth. And I imagine Mr. Keill himſelf
will not deny that 60 or 70 Miles together of
the inward Earth, ſatur’d and full with Water,
might afford much more than we have occaſion
for at the Deluge; and ſo might eaſily ſupply
the Fiſſures, in a conſtant drein for 5 Months
together, with enough to go more than half
way in the laying the Surface of the whole
Earth under Water. However, ſince we know
not, nor did I ever directly aſſign, in what pro-
portion the two ſeveral cauſes of the Deluge con-
tributed their ſhares thereto; my *Theory* is not
concern’d, though no more Water was thrown
out upon the Earth than fill’d the Fiſſures, as
high as the Earth was ſatur’d with Water at the
Moſaick Creation: which Quantity even Mr. Keill
ſeems not unwilling to allow me. As to the
Denſe Fluid it ſelf, and whether the force were
great

great enough any where to cast any quantity thereof out upon the Earth, I know not how to determine. Though so far I am sure, that vast quantities of it might have been on the Earth without any of its appearing now above ground; which is Mr. *Keill's* Objection in this case. For unless there was more than Satur'd, and perhaps Consolidated with, the Sediment of the Waters (which now, as Mr. *Keill* will grant, composes at least two or three hundred Feet thickness of our present Earth:) I am sure we are not, (on account of their mighty gravity bearing 'em to the bottom of the whole Fluid,) to expect any remains of it in the Seas or Ocean, no nor in any Pits, Holes, or Valleys upon the present Earth.

And here Mr. *Keill* is so kind as to afford me a breathing time, and to grant so many of my solutions to be right at once; namely all those relating to Dr. *Woodward's* Essay, and the Sediment of the Deluge; that I cannot but own my real Joy on this occasion: That the force of my reasoning should here prove so strong as to satisfy even Mr. *Keill* (who seems so little to acquiesce in many other of my Arguments) in that intire point, of which I must grant my self, from any enquiries of my own, to be the least Master, of all other in my Book. And truly I must say that I think Mr. *Keill*, by confessing that I have convincingly enough prov'd that a Comet pass'd by the Earth at the Deluge; and that All Dr. *Woodward's* *Phænomena* are rightly accounted for by that easy Hypothesis I took concerning them; By these concessions, I say, I believe Mr. *Keill* has done more to establish my Book, than all his Objections will avail to reject

reject it : And himself is therefore much more my Friend and Patron than he ever intended to have been by these Remarks on my *Theory*. But to leave this Digression, and proceed to the

P. 221, &c. (11.) *And Last Objection ; which is this, That though I can easily fetch as much Water as I have occasion for upon the Earth to drown it ; yet I have no way to get handsomly rid of it again ; and consequently my solutions of the Phenomena of the universal Deluge come to nothing, and all at last must be resolv'd into Miracle.*

Now how it has come to pass that this draining off the Waters of the Deluge has been so much stuck at, I cannot tell : The thing it self having, I think, no difficulty in it. Certainly the pores and interstices of 30 or 40 Miles of dry Earth are capable of receiving 3 or 4 Miles of Water into 'em : and certainly the same Fissures which permitted the ascent of the Fluids from beneath before, would after the ceasing of that force permit the descent of the Waters of the Deluge ; and by degrees in length of time draw them off, and so leave the Earth as it now appears to us. For what is in the *perpendicular Fissures* will sideways run into, and saturate, by the *Horizontal Fissures* and other passages, all the Neighbouring Earth : which if Mr. Keill doubts of, let him but make a hole in the Earth, and fill it with Water, and see whether he do not perceive the Neighbouring parts to be moistened, and the hole to be soon empty enough to require a new supply ; notwithstanding there be no subterraneous Cavern ready to receive it : which easy experiment may go a great way to convince

convince Mr. *Keill* that the removing the Waters of the Deluge is no such insuperable *Problem*; as he seems to suppose it.

Thus I have gone through the whole Body of the Reflections made by Mr. *Keill* on my *New Theory*: and hope I have observ'd the Rules which at his desire I at first set my self in this Reply: And all that I, in my turn, shall claim of him, in case he think fit to make any Rejoinder, is this, That he would be careful therein to observe the same Rules himself, which he expected from me; and be as ready to own any satisfaction I may have given him in any points, as to reinforce those Objections he may perhaps not yet be satisfied about. And as I shall willingly correct any occasional mistakes whether in other points, or in the Mathematicks of my Book (a few of which, tho' of no ill consequence to the *Theory* it self, I am conscious of) if it ever come to a Second Edition; So in order thereto I shall heartily thank Mr. *Keill*, or any body else, who shall be so kind as by Letter to inform me of any of them.

I have now done with Mr. *Keill's Remarks on my Theory*; and before we part, I shall only desire him to answer plainly to a question or two relating to the matter now in debate between us; and shall then take my leave:

(1.) Since Mr. *Keill* grants that a Comet pass'd by at the Deluge, and yet contends that the Flood is not to be solv'd therefrom, but is to be believ'd wholly miraculous; To what purpose did the Comet so providentially pass by

by just at that time if it had no relation to the Deluge? Does Mr. Keill imagine, That the same miraculous power which caus'd the Deluge could not also, without the attraction of a Comet, make the Earth's Orbit *Elliptical*? A strange, unheard of, and most surprizing *Phænomenon* happens in the World! A Blazing Star, which we but seldom discover at a vast distance in the Heavens, descends hard by the body of our Earth: which without the greatest exactness in the Chain of Providence does not happen in thousands, nay millions of years: and as soon as ever 'tis pass'd by, a wonderful, and incredible Deluge of Waters overflows the whole Earth, and drowns all its Inhabitants without any other visible or imaginable occasion in the World: and yet, as it seems, the Comet only accidentally pass'd by, and had no hand at all in the Deluge! — *Credat Judæus Apella.*

(2.) How could those effects I have mention'd be avoided upon the passing by of the Comet? We are not now in a *Cartesian Vortex*, where fancy and contrivance can introduce or hinder any effect at pleasure: But we are in Mechanical and Experimental Philosophy, which is an inflexible thing, and not at all subject to our inclinations. When the Comet therefore was just pass'd by us, I desire to know how the Earth could possibly avoid passing through its Atmosphere and Tail? If it could not, Pray what could prevent the acquiring that Column of Vapours I, by computation, find would fall on its Surface? And if such a Column of Vapours was left on the Earth, what could hinder their

their becoming Water, and drowning the Earth? I shall not, though I easily might, carry on the Chain of Queries any longer. But if Mr. Keill can fairly Answer me these few leading Questions, I shall then believe him alike able to Answer the rest, and so I shall not pursue this particular any farther, but leave it and this whole matter to his and the Reader's leisure and consideration.

Apr. 1. 1698.

HAVING thus finished what I had to return to Mr. Keill; I shall upon this occasion consider such other material Difficulties and Objections relating to the *New Theory* as have come to my knowledge any way, either in Print, or in private Letters; concealing still the Names of those who have been so kind as to content themselves with the latter method; tho' at the same time it will appear that in many cases the Authors need have been no more ashamed of their Arguments, than any of those who have chosen the more publick method, and appear'd from the Press against me. And I fear not to appeal to the Persons concern'd, for the fairness and justness of my proposal of their Objections; and that the returns I now make are generally for substance the same which my private Answers contain'd upon the several occasions. To go on therefore with the numbers.

Dr. T. Robinson's
Additional
Remarks.

(12.) *The next Objection is, That I have omitted many insuperable difficulties which have been urg'd against the Forming of our present upper Earth from the Sediment of the Deluge.*

In answer whereto; for (to say nothing that the non-appearance of any Towns, Cities, Buildings, or other Remains of the *Antediluvian* World, is next to a demonstration on my side;) I must own that I was so incapable of overcoming those *insuperable difficulties*, that I knew nothing of them: and I did not in the least think, that what I of my self suppos'd concerning the natural Subsiding of that Sediment, and without any *prior* Dissolution of the Old Earth; its composing a new Crust upon it, had been once hit upon by any one else before me. Now whether there be such *insuperable difficulties*, as to the main strokes of that *Hypothesis*, I ought not to pretend Skill enough in the *Phænomena* of the inner Earth positively to determin. Dr. Woodward's larger Work ought to be publish'd before one can venture to pronounce too dogmatically in that Point. As to my self, I see hitherto no reason to change my Belief therein, notwithstanding the confidence of this Author. Whatever difficulties may appear at the first sight, (arising, it may be, from a misunderstanding of several particulars relating thereto, and of several circumstances therein to be consider'd,) yet those numerous Shells, Bones, Trees, Plants, and other Bodies found in so many places in the Bowels of our present Earth, to say nothing of what was urg'd before, or might be from other arguments, are to me so convincing, that 'tis not

not a few *difficulties*, nay scarce less than a *demonstration* will persuade me to the contrary. If the non-observation sometimes of the Law of Specifick Gravity, and the consequent irregular Position of the *Strata*, be the main Objection in the case, as it seems, by this Author, to be, I had observ'd and accounted for the same already in the *New Theory*. And certainly if the irregular disposition of Bodies in such a *Chaotick* Phenom. Sediment, with the as irregular Tempests and 83. Commotions of the Waters, and the consequent removal of several Masses either settled or settling down from one place to another, by which the Order, Crassitude, and Position of the *Strata* must have been strangely diversified, together with all the other circumstances of the Old Earth, and of the Deluge, be consider'd, 'twill not be so strange, that the irregular Position of the *Strata*, subsiding all the while according to their several Specifick Gravities, was disturb'd and interrupted without being oblig'd to reject such an intire *Hypothesis* on account hereof. It will however (that I say something to what is here observ'd from the Learned Dr. *Lister*) deserve to be consider'd, whether some of those Subterranean places, where such mighty shoals of Shells are heap'd together, be as proper for their production as those Cavities in Animals where 'tis said some have been found, (to say nothing of Knives, Nails, and other things sometimes found in the Bodies of Animals, which No body imagins to have grown there;) at least those Trees, methinks, which are found buried so deep in the Earth, will give some foundation for that *Hypothesis* I here defend: there having been no instances of such productions, I suppose,

Pag. 85.

in Animals ; and this Author himself, or rather his Namesake, in a good humour being willing to allow them as Reliques of the Deluge, how much soever at another time he seems dissatisfied in that point.

But however that matter shall be determin'd, the main and principal Parts of the *New Theory*, and those in which I look upon my self as most nearly concern'd, are not very much interested therein. Those who, with this Author here, suppose the Subterranean Shell-Bones, and Vegetables, to have grown originally there where they are now found, may suppose the Waters of the Deluge to have been indifferent pure, and that their Seditient by consequence was less considerable ; and may then omit so many of the *Phænomena* and their *Solutions* in the *New Theory* as refer to the other Opinion, and the rest will, I hope, afford them still all reasonable satisfaction. Nay farther, Altho' any, with Dr. Woodward, should see reason to insist upon the Dissolution of the Old Earth, and the Resettlement of the same again at the Deluge, They will yet, I am pretty sure, be unable to account for the greatest Number, and those the principal *Phænomena* of that Deluge, without that passing by of the Comet, which, if I mistake not, I have next to demonstrated in the *New Theory* ; and upon which the main Reasonings of that Book, with relation to the Deluge, are founded. And tho' what Arguments these may urge, should make it reasonable to add somewhat to, or alter somewhat in the particulars in the *New Theory* relating to the Sediments of the Flood, yet I think they must be far from affecting the principal parts of that Book. In
case

case my Calculations and Deductions concerning the Commencing of the Earth's Diurnal Rotation at the Fall, and the passage of the Comet at the Deluge, with their Consequences, hold true, (and I have met with nothing hitherto to be opposed to 'em,) I shall go near to leave the other coincident Point of the Subterranean Bodies to such as are more capable Judges of those matters, and freely give them leave to believe what they shall have good evidence for in that case; tho' at the same time I must needs profess, that the Arguments for what I have asserted, even on that Head, appear to me so cogent, that as hitherto I have not, so I do not hereafter much expect to meet with Reasons sufficient to alter my opinion therein.

But here, before I proceed, give me leave to vindicate my self from an Aspersion thrown on me by the Author of this last Objection; viz, The Quoting Dr. Woodward's *Essay* for several Observations, which 'tis said he was not the primary Author of, and depriving thereby the first discoverers of their deserved commendations. Now if this be so, and those things which I have cited out of that *Essay* be owing to the Pains of others, and not his own, (tho' I am not satisfied how that matter stands, nor am ready to believe the Doctor so great a Plagiary as some would make us believe,) I sincerely profess that I was wholly ignorant of it; and if any thing of that nature have been done, the Author of that *Essay*, not of the *New Theory*, is accountable for it. I neither am, nor pretend to be Master of much Skill in the History of Learning, or the natural History of the Earth:

and this Author very rightly takes notice, that I have not shewn a profound or clear knowledge in those matters (which yet methinks might have been more easily excus'd in a young (however thoughtful) Divine, as I am stil'd a little before.) My own Studies and Inclinations, to say nothing of some other circumstances, have lain somewhat another way: and I do not know any obligation upon me, *inuitâ Minervâ*, to force my self into them. I did therefore, I think, what Prudence dictated in the case; where my own Stock fail'd, I had recourse to the more Skillful; particularly to Dr. Burnet's Enquiries as to the Ancient Traditions and Doctrines of the Philosophers; and to Dr. Woodward's Essay, just then made publick, as to the present *Phænomena* of the Earth. Both of them, in their several kinds, had methought extraordinarily perform'd their parts, so far as I had occasion to make use of them; and Both of them being Extant before any of my own Notions were known to others, or almost discover'd by my self, I thought, whatever partiality they could possibly be suspected of, with regard to *their own* several *Hypotheses*; yet with regard to *mine* their attestation could not but be deem'd valid and unprejudic'd, and so not unfit for me in those circumstances to rely upon. When therefore I observ'd that almost all which was matter of Ancient Tradition, or of fact; almost all that agreed with Scripture, and requir'd nothing immechanical or miraculous in 'em both, did easily fall in with my own Notions, and Calculations; In particular, when I observ'd that the Waters of the Deluge, and their contained Bodies, would naturally arrive at that very state *without*, which Dr. Woodward thought

his
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his *Phænomena* forc'd him to bring 'em to *with* his own strange *Hypothesis* of the Dissolution of the Old Earth: and that consequently what Evidence he had for *his own*, would in all probability be stronger on the side of *my Hypothesis*; I made no farther delay or enquiry, but set down things from those Authors (whom I almost alone had opportunity to consult, and whom accordingly I every-where quote in the Margin) as they now stand in the *New Theory*. This is a true and fair account of the matter, and such as I hope (whatever it do as to the weakening the Opinion of my *abilities*, which I shall not endeavour to raise beyond the truth) will free me from any just Imputation of *design*, or *disrespect* to any: of which I am not in the least conscious to my self, and of which I think I have not given any Indications in the *New Theory*.

And truly as to what this Author in the last plate is pleas'd to repeat again, notwithstanding his *discovery of a noble Genius in the Formation of my System*, and his *unwillingness to accuse me of any ungenerous dealing* concerning my ascribing the Observations of other Eminent Philosophers to *one of my own Acquaintance, who may do as much for me another time*; I think he is not just and fair to me. I have never had the honour of any Acquaintance with the Person he means; neither have I, in my treating that Persons *Hypothesis*, shew'd any such favour or partiality as should induce any one to pass so severe a censure upon me. But I suppose he has receiv'd some wrong information, which has occasion'd this reflection; which I have so much charity as heartily to forgive him, tho' I am certain I have not deserved it at his hands.

N.T. Phæ-
nom. 71.

(13.) 'Tis

Dr. Nichols
ad Confe-
rence with
a Theist.

(13.) 'Tis allieg'd against me, That my Mecha-
nical Account of the Deluge implies it was no divine
Judgment for the World's Wickedness; but from the
Necessity of the Motion of the Comet and Earth, must
have happen'd whether Men had repented or not;
and so induces a rigid fatality: And withal 'tis said,
That tho' Miracles, i. e. a violent perturbation of na-
tural Laws, be not usual; yet a Providential Inter-
position in particular Events is, and must be own'd
to be so; or else the Foundation of Devotion and Re-
ligion is gone.

Now as to a rigid Fatality. 'Tis strange my
Theory should be built on it, when I'm sure I
never imagin'd such a thing, nor in my opinion
or practice at all differ from other Christians in
those things relating thereto. I believe the same
as to the Success of Prayer, the Interest of the
Divine Providence, and the Deluge's being a
proper Effect thereof, as any other Christian
does: And were not this Objector so hot, and
engag'd in the Point, methinks all this is visible
in my Book. Now the Original of this Man's
mistake is the same, as is the Original of their
mistake in the arguing against the Liberty of
Will, from the Certainty of the Divine Prescience,
and of Prophecy depending thereon: and when
you have rightly consider'd the latter, I imagin
you will easily rectify your mistake in the for-
mer Case. You say the Flood would have hap-
pen'd whether Men had been Wicked or not,
because the Comet was approaching. Let me
argue in the other case: The Flood would as
certainly have happen'd however, from the Cer-
tainty of the Divine Prescience which foresaw
it.

it. If you answer, The Divine Prescience foresaw the Sins as well as the Punishment : So say I, It foresaw the Sins, and therefore Originally dispos'd the Comet's Course for the Punishment : which if Men had amended, would have been foreseen, and so the Comet otherwise dispos'd of at first. And certainly the same Answers every-where will serve in my Case, which can be alledg'd in the other, on which mine wholly depends. And truly I was so fully satisfied in Dr. Burnet's Answer in this Case formerly, (and observe Mr. Warren to have so little to say to it in his *Geologia*, P. 126.) that I usually thought those who could not clear this Point to their own Minds, not capable of Philosophick Theories. This Objector does well distinguish the particular *Interposition* of Providence from a *Miracle*, and says our Prayers depend on the former. It may be so, for ought that I am sure of to the contrary ; and however, 'tis best to suppose it in our Devotions, as I always do, and the Scripture always does. But seeing the other Notion is equally suitable to Religion, comes to the very same at last, and will be of vast use in case of the other parts of Nature yet to be discover'd, be found reducible to as fixt Laws as those we already know, certainly are ; as giving a clear account of the Consistency of a settled Course of Nature, with the constant Interposition of Providence in the World. I confess I am pretty confident of the Truth, as well as fully satisfied of the Use of my Account of these matters. My own Reputation may be blasted among some warm Persons (tho' I find few competent Judges stick at this point) by my maintaining this Opinion : But I fear Religion among the

Deists

Deists will suffer more without it. Those who are angry at me, believe the Bible, and so will not be hurt, but only displeas'd at my Notion. But those who finding Nature constant, know not how to bring in, or believe a Providence, will be really hurt without such an account as I have given; and where only my own Interest is on one side, and that of Religion on the other, I think I can cheerfully submit to some degrees of Popular Odium, if it should be my hard fortune to incur it, without any reason: which yet the reception I have generally met with, gives me no reason to expect.

Dr. Nichols. (14.) 'Tis alledg'd, That by turning the days of Creation into years, I am too bold, and not very consistent with my own Hypothesis; that neither the sacred Stile, where days are so often us'd for years, implies any thing; because those words of time are in all Languages us'd indifferently: nor the Profane Testimonies, because they seem no more to countenance my Hypothesis than Dr. Burnet's; and in truth were only unintelligible Paradoxes coin'd, as usual, in those Ages; and of which many more might be brought to support other fancies; or at best were but explanations of the perpetual Spring, which was a fancy of the Poets for the Golden Ages.

But sure this is too loose arguing to be oppos'd to all the positive Evidence I have alledg'd in this case. I can demonstrate to none but such as grant all my *Postulata*, the 3d of which is here set aside; and if any think 'em precarious, they must look for better satisfaction in other Authors. But however, I do not turn *days* into *years*; but deny their distinction before

fore the Fall : And in truth the Vulgar Expositor ought as well to prove that their days then were of the present length ; as I that they were equal to years ; since there is no particular intimation in the Words how long they were ; nay, whoever considers, what will I hope e're long be demonstrated, that *days* are only in two places of the Scripture denominated by *Evening Mornings*, the one here, and the other in *Daniel* ; Dan. 8. 14. 26. and that 'tis evident in the latter they signify N. T. P. 84. years, will not be averse from believing the former to denote the same also. Besides, I have already deny'd that all words of time are us'd wholly promiscuously in Scripture ; and am confident the contrary is not to be prov'd therefrom. But as to the prophane Testimonies ; those who can give a rational account of 'em, will never slight 'em. And whatever is here in the general said, I refer my self to the considering Reader whether I have not demonstrated those Ancient Philosophers to agree better to mine than to Dr. Burnet's Hypothesis. But instead of a farther Answer here, I shall add another confirmation of the same nature, which since my Book was publish'd was discover'd by a Friend, and communicated to me : which I must own to be a much more remarkable Testimony than any of those I formerly insisted on ; which therefore I shall recommend to the Reader's consideration ; and 'tis this ; 'Twas the Assertion of *Empedocles*, Vid. Plut. de Plac. Philosoph. That in the Primitive Constitution of things, the *Day*, *ἡ δὲ νύξ ὡς αὐτὴν ἡ ἡμέρα*, by reason of the slowness of the Sun's course, was equal to L. 5. C. 18. Censorin. De die Natali. C. 20. *Ten Months*. Which if we allow either to refer to the time when the Civil year (as the *Roman* before *Numa Pompilius*) had but 10 Months ; or

to the day time alone, I mean the space of the Sun's being above the Horizon, (which is a common acceptation of the Word *Day*;) accords so exactly with my Hypothesis, as it stands at present, that nothing can do more so: and coming so late, so unexpected, and yet so intirely home to our point, is justly, I think, to be look'd on as decretory in the present case.

Dr. Nichols. (15.) 'Tis said I have not ground enough to suppose a double course of Rain at the Deluge.

This is a matter of small consequence; for as I with others think the double course much the most agreeable to the Sacred History, and have accordingly accounted for it; so in case it were not so, no great harm would accrue to the rest of my *Theory*: for as, if the Comet's Orb was exactly in the plain of the *Ecliptick*, the Earth would fall a second time into it, unless its Tail was very short; so if either of those circumstances were otherwise, which we can only determine from the effects, there could be no second course of Rain upon my Hypothesis. All which is said more with regard to others notions than my own: for I confess I see no manner of reason to recede in this point from what I have said already in the *New Theory*.

Dr. Nichols. (16.) 'Tis said that by supposing Seas without Clouds before the Flood I contradict the known Phenomena of nature: for when Vapors and Steams are rais'd, they must necessarily gather into Clouds, as they do at present.

But

But sure this is too hasty a Conclusion : and if the Moon has Seas, as is generally allow'd, 'tis contrary to the known appearances of that Planet : to say nothing of any of the others. And certainly the long spaces at some times, and in some Regions, which are without Clouds, even in our present state of things, when yet vast quantities of Vapors continue in the Air, are sufficient Answers to this Argument. 'Tis, I think, the Wind, and the irregular Condensation and descent of the superior and inferior Vapors which occasion those thick Masses in the Air we call Clouds, and those showers consequent thereupon, and not any thing belonging to the Antediluvian Earth.

(17.) 'Tis Objected, with great shew of accuracy, *Dr. Nichol.* that in 40 days or 96 days but a very small quantity of Vapors 4000 times as rare as our Air could descend; within which spaces yet the Rains at the Deluge must be confin'd : for as Vapors now condense and fall about a mile in six hours, when they compose the dew ; so vapours 4000 times rarer would be 4000 times as long before they would descend ; so that every Mile of the Comer's Vapor (at least that of the Tail) must be 1000 days, or almost 3 years in condensing into rain ; and so by consequence 750000 Miles of this Vapor must be almost three times 750000 years before it be all condens'd and fallen upon the Earth.

Now in Answer to this I say, Here is a gross mistake, that every Mile of the Comer's Vapors must have a distinct time of condensing, and descending. As they all fell at once upon the Earth at first, so those of the same degree of rareness

rareness would generally be condens'd and descend at once upon the Earth in rain afterwards. And as the Vapors, being of several degrees of rareness, and subject to various chances, would successively descend and cause continual Rains ; so I think the spaces of 40 and of 96 days, sufficient to confine the last of 'em respectively. The Altitude, and where the Air is 4000 times as rare as with us, and whence, by consequence, the highest would descend from, is not so many Miles as one would imagine, (as the *Toricellian Tube*, by its different height, at the foot and top of Mountains assures us) nor indeed any other than very well agrees with the 40 and 96 days of descent, which are necessary in the present case, as on a fair Calculation, will, I believe, easily appear ; tho' 'tis so impossible to state all the points relating to this matter very nicely, that I think it hardly worth while to set about it, since the general consideration hereof does so wholly take off the force of the present Objection.

Dr. Nichols. (18.) *'Tis said that because the bodies of Comets appear much less in their Perihelia than before, 'tis probable their Tales are Smoak, and not Vapor ; and that the Earth of the Comets was by the Sun's heat evaporated, and composed the Tail.*

Now truly this is to me News, that the Central Body of a Comet grows much less at the Perihelion. 'Tis true, the Atmosphere becomes somewhat less at that time ; which is a natural effect of the rarefaction of part of it into the Tail. But Smoak is an Earthly Substance, not to be rarifi'd or elevated in any proportion with Vapors ;

Vapors, indeed when I see showers of Dust or Smoak as common as those of Rain, I may be tempted to doubt of this point, but hardly before; especially if we regard the Tail in its descent from the cold Regions, which must certainly be Vapor, till the violence of the heat in the Perihellion doth mix other Earthly Bodies therewith. Tho' if much Smoak were among the Vapors, I see not what great harm would ensue to my Hypothesis thereby.

(19.) *'Tis said Noah and the Ark must have been scorch'd or burnt by the heat of the Comet and its Atmosphere, if they came as near as my Hypothesis requires.* Dr. Nichol's

To omit here the place of *Noah* and the Ark, (In that Hemisphere of the Earth which escap'd the primary descent of the Vapors; and so let 'em have been never so hot, would be cool'd ere they became Rain :) I pray what harm could a Comet, tho' 10 times as hot as the Earth (which yet is too great a heat in the descent to the Sun) at the distance of at least 30000 miles, do to it? For tho' the Comet which Mr. *Newton* mentions were heated prodigiously, and would not cool in a very long time; yet this revolving in such an Orbit as my Figure supposes, sustaining but the 60th part of the heat, and revolving, if the Trajectories were similar, not under 20 times the period of the other, is not liable to the same computations; or ought to occasion the same difficulties; which if the other had come by in its room might justly have been alledg'd against me.

Mr. B.

(20.) 'Tis Objected, with great shew of strength, that the different attractions of the Earth and Moon must separate 'em farther than before, and thereby at once alter the species of the Orbit of the Moon, and its periodical time also; on the continuance of which last so much depends; for at the Comets approach it would, before it came at either of 'em, draw 'em asunder and accelerate 'em differently, and after it was past 'em, it would do the same; by reason of the different distances of the one and the other to the Comet; and by reason of the proportional attraction of the one commencing before that of the other.

In Answer to this difficulty, which deserves a careful consideration, I deny that any such eccentricity, or difference of periodical time in the Moon would follow: For as the acceleration of the Earth commenc'd before that of the Moon, so also did its retardation; and as while the Comet was above or below 'em both, it would separate them; so while it was between 'em it would draw 'em together. Besides, in general I demonstrate the whole thing thus: The Earth and the Moon had equal velocity, and a right position before: And the velocity and position were equally increas'd, or affected alike by the Comet, (as from the like position of these two Bodies in a System revolving about their Common Center of Gravity, and from the equal approach and acceleration of the Comet to 'em both is plain.) And consequently their old Position and common Revolutions would still remain. So that when the Moon's Eccentricity could be no other way caus'd by the

the Comet than I conjectur'd, in which the p. 199.
 Period of the Moon would still be preserv'd, all
 these fears may be at an end. Tho' I heartily
 thank this Objector for putting me upon
 clearing so substantial a point; in which the
 main of the *New Theory* was so deeply concern'd.

(21.) *That our Earth should have been once a Comet seems not probable, because in all past History no other Comet has been observ'd to stop and become a Planet; which one would imagine should now and then have happen'd since the Mosaic Creation.* Mr. B.

For Answer to which I say, That as the Earth is inconsiderable in comparison of the Universe or the Solar System; so I believe is 6000 or 7000 years, (the Period I suppose of its duration) [much more about 2000 years the reach of our Astronomical Histories] to the Duration of the whole System. So that tho' we have no other Example of an Earth form'd from a Comet, yet this is no great difficulty in the Case. I believe Worlds are not form'd every Age, nor perhaps every thousandth Age neither.

(22.) *Why should not the Comet, to which I ascribe the Deluge have been seen many days before it approach'd the Earth, since 'twas in opposition to the Sun?* Mr. B.

In Answer to which I say, That if it were seen, as perhaps it was, and so the memory of the Flood's happening upon it preserv'd; which

Solut. 93. one of my Solutions will easily permit any one to suppose; yet because its nearest approach was indiscernible to those who Surviv'd, and because withal 'twas not then imaginable, that a blazing Star could drown the World; or indeed could approach the Earth at all, 'tis not to be expected that any Ancient History should ascribe the Flood to it.

**Fig. 3.
Mr. S.**

(23.) 'Tis Objected, That whereas I assert that the point B. or place of the Comet's passing by the Earth, by reason of the prevalence of the outward attraction over the inward, must have been five, six, or seven degrees after the place of the Perihelion; on the contrary, by the nearness of the inward attraction downward, immediately after the passing by of the Comet, so far as to over-balance the longer time of the outward attraction, the point B. ought rather to be as far before the Perihelion; and that, by consequence, one of my greatest coincidences is gone, and my superstructure all precarious and false.

In Answer to which I must ingenuously own, that this is so far true as to take away the distance between the point B. and the Perihelion; which I before assign'd, upon a general view, and before any trial by computation. Nay, I must farther own that the above-mention'd inward attraction, by reason of its nearness, does over-balance the longer time of the outward; and so the point B. must be rather on the other side of the Perihelion. But then I must say 'tis on Calculation so small, as is wholly inconsiderable; and the point B. and the Perihelion coincident: which being thus granted, unless we can find the motion of the Perihelion to have been slower than

than Mr. *Flamsteed's* Table, which I alone mention'd before, allows, this, will be a shrew'd difficulty in the present case, and destroy one of the best Foundations of the *New Theory*.

Now in this Enquiry I find that Mr. *Newton's* P. 473. computation *à priori* corrected, allows but $53\frac{1}{3}$ degrees to the motion of the *Peribolion* since the Deluge: That Mr. *Street's* Tables are very nearly for the same number, viz. $53\frac{10}{11}$; Nay, that *Tycho's* Tables allow only $50\frac{1}{2}$, so that if we take a mean $51\frac{1}{2}$, this will bring the *Peribolion* at the Deluge to the very day the 17th degree of *Taurus*, and the 17th day of the second Month. Which last computation of *Tycho's*, as it was that I first observ'd, so now I finding it so near the exactest computations of others I acquiesce in one very near it: and am not displeas'd that, by means of this coincidence, the very day of the beginning of the Deluge may almost be assign'd already; and when the *Peribolion's* motion is better fix'd, may perhaps be perfectly so; to the still greater confirmation of all those coincidences, which of themselves have appear'd so remarkable in the case.

A P P E N D I X.

Law. p. 19.

UPON this Occasion I think 'tis proper to own and correct a mistake in the *New Theory*: where the *Axis* of a Cone is affirmed to pass through the *Focus* of the *Ellipsis*, generated thereon: which mistake, as I am now satisfied it is, tho' it were an illustration only, and of no farther consequence, yet ought to be rectified; which therefore I hereby do, as far as I am able; and hope this free confession will procure as free a pardon from every one who considers that himself is not wholly free from Errors and Mistakes.

It may not perhaps be here, upon this occasion, improper also to improve as well as correct the *New Theory*, and make some few additions to it, and where they ought to be inserted the Margin will direct the Reader.

Post. a Coroll. Solut.
33.

Coroll. Since the number of years from the Deluge till the fixing the present period of Human Life in the days of *Moses*, is according to the Chronology of the *Septuagint*, at least equal to that from the Creation to the Deluge, according to the *Hebrew*; (from which latter the Calculations of this 33d *Phænomenon* are made) and since withal the lives of Men at a *Medium* were during that space from the conjoint Testimonies of both the *Hebrew* and *Septuagint* about 265 years;

years ; 'Tis easy on the grounds proceeded on there to prove, that in Case the *Septuagint's* Chronology be receiv'd, the World must have been much more populous in the days of *Moses*, than it is at present ; and that by consequence Mankind has not increas'd but decreas'd in number since those ancient days ; contrary to the most undoubted matter of Fact in all the past and present Ages of the World. So that 'tis evident that not only some pretended vast Numbers of years of the *Egyptian Dynasties* or *Chinese Reigns*, with any other extravagant computations of those kinds, enlarging the time since the Deluge, but also the additional years introduced by the *Septuagint*, nay, or the *Samaritan Pentateuch* are false, and contrary to the certain account of the increase of Mankind in these latter Ages of the World. Upon the whole therefore no other accounts of the Ancient times, whatever some have imagin'd, have rational Evidence, and the *Phænomena* of Nature on their sides ; but those which the *Hebrew Verity* delivers to us.

Corollary. It may here deserve our Notice that tho' the present Period of Human Life was generally fixt in the days of *Moses* ; yet seeing such things are gradual, and sooner reduc'd to a Standard in some Families, Countries, and Situations than others ; it seems not necessary, nay not probable that the Period was *Universally* reduc'd to the lowest at the time assign'd. So that if in the next Period we find some instances of Longevity which are hardly to be parallel'd now, it will be no more than *may*, nay, than *ought* in reason to be expected in such a case. Thus there is no reason to be surpriz'd that *Mo-*

*Coroll. 5.
Solut. 7.*

ses himself reach'd 120, his Brother *Aaron* 123, and their Sister *Miriam* about 130 years of Age. And in like manner the Cases of *Rahab*, *Booz*, *Obed*, and *Jesse*, the Progenitors of King *David* (where four Generations reach'd about 400 years) which otherwise, notwithstanding what the History notes particularly of the great Age of one or two of them, if compar'd with later times, would appear very strange, and next to incredible, are become hereby very easy, and very agreeable to the state of things in those Ancient Ages of the World.

Ruth 3. 10.

1 Sam. 17.

12.

[By way of *Corollary* at the End of the Postscript.]

Corollary. The main Body of the 10 Tribes, as well as of those two of *Judab* and *Benjamin*, returned out of Captivity, and resettled themselves in the Reign of *Cyrus* and his Successors in their own Land. This is, I confess, a new conjecture, and contrary to what *Josephus* really does, and the Sacred History is suppos'd to deliver touching this matter. But when 'tis better consider'd, I imagine both *Josephus* will be found to deliver somewhat which will assist us to rectify his Assertion, and the Sacred Books will be found every where to establish what is directly contrary to the common Opinion herein. It may be own'd that the Catalogues of particular Families mention'd by *Ezra* and *Nebemiah* do not concern the 10 Tribes; nay, it may be own'd, that in the first of *Cyrus* those carried into *Babylon*, or the two Tribes alone returned home; (and the Catalogues belong expressly and singly to the first Return of all in the first of *Cyrus*, and that out of *Babylon* only.) But that

Ezra 2. 1.

Neh. 7. 5,

6.

that the Ten Tribes did not return either presently after, or in the following Reigns, particularly in the 2d of *Darius*, or the 7th or 20th of *Artaxerxes* is, I think, improbable in it self, and not agreeable to the Scriptures, nor to that Assertion of *Josephus* on which I ground this Corollary, and which I now come to explain. The intire Number of those who returned out of Captivity is not set down in Scripture, but is by *Josephus*; and 'tis thus : *Τὸ δὲ κατὰ λαὸν, ὃν ἀπερχομένων ἐπὶ τὴν ἡλικίαν γεροντότων ἦν μυριάδας ὕψιστος καὶ ὀκτακισχίλιοι.* The total Summ of those who returned, above the Age of twelve Years, was 4628000, without including the Levites or their Families. Now if we suppose this Summ taken out of the Old Jewish Records, and that they, as in the Scriptures, included only the Males, as 'tis reasonable to do, it will appear that so great a Number must relate to the whole twelve Tribes, not to those of *Judah* and *Benjamin* alone, as *Josephus* asserts. For seeing the Tribes of *Judah* and *Benjamin* together, in the former numbering of 'em by *David*, were of Males above twenty Years old, or that drew the Sword, about 500000, and that after the allowance for their increase at the rate of doubling in 360 Years, consider'd with that mighty Diminution of 'em by *Pekah*, the King of *Israel*'s slaying 120000 of 'em in one Battle, their Number at this their Return from *Babylon* could not be much above one Million; as on Calculation will appear. This mighty Number in *Josephus* may justly seem much too large for the two Tribes, nay to the full large enough for the twelve together: as any one, who from the intire Number

in

Antiq. 1.
11. c. 4.

Vid. P. S.
2 Sam. 24.
9.

2 Chron.
28. 6.

Vid. P. S. in *David's* Time, and the proportion of increase till the Return out of Captivity, compar'd with the mighty Diminution of 'em by *Abiab*, the King of *Judab's* slaying Five hundred thousand of 'em in one Battel, reduces this matter to Calculation, may easily perceive. Which Observation methinks is of considerable force to prove that the ten Tribes are not lost, nor still scatter'd abroad about *Assyria* alone, as is so commonly suppos'd, but return'd with their Brethren the *Jews* to their own Land; and were with them subject to all the Accidents mention'd by *Josephus* under the *Persian* and *Grecian* Empires, the *Asmonæan* or *Maccabæan*, and *Herodian* Races, till their common and utter Excision, and ultimate Dispersion by the *Romans* under *Titus Vespasian*. This Observation and Corollary might easily be confirmed from other Arguments. But that would be to digress too much from my Point. He who doubts may see some confirmation in what Archbishop *Usher* takes notice of (tho' without design to prove what I say) at the Year of the World 3468. To which, together with his own Observations hereafter, I refer the Reader.

Scholiū
post Corol.
2 Solut. 61.

'Tis perhaps worth our Enquiry, whether most mens Notions of the time for the abating of the Waters of the Deluge be not very precarious, at least if not wholly mistaken. 'Tis the general Opinion, taken from the Mosaick History of the Flood, that the Waters were wholly subsided, and the Earth laid as dry in a manner as 'tis at present, by that time *Noah* came out of the Ark; or in the Space of about a Year, from the beginning of the Flood. 'Tis true,
Moses

Moses says, that on the *seventeenth Day of the se-* Gen. 8. 3, 4.

venth Month the Waters were abated, and the Ark ver. 5.
rested on the Mountains of Ararat: That on the

first Day of the tenth Month the tops of the Moun- ver. 13.
tains were seen: That on the first Day of the

next Year the Waters were dried up from off the Earth. v. 14, &c.
And then lastly, That on the twenty-seventh Day

of the second Month was the Earth dried, and Noah
call'd out of the Ark. But all this may be very

true, and yet vast quantities of the Waters of
the Deluge might at the same time remain on

the face of the Earth. And as the present Ocea-

an may be still part of the same, so the rest of

them might require a hundred or two hundred

Years before they arriv'd at or near to their pre-

sent subsidence and condition. And this, I think,

is the truth of the case, and is so far from con-

tradicting the Sacred History, that it may be

establish'd by an Observation or two from

thence, as well as by the present Phenomena of

Nature. As to the Sacred History of Moses, 'tis

first evident, that the Mountainous Regions a-

bout Ararat or Caucasus, especially since they

were, from my Hypothesis, particularly Elevated

above the rest, might be wholly clear of the

Waters in a year's time; and yet the lower

Plains and Valleys in a very different Case, and

still to a great depth under the Water: And

'tis as evident, 2ly, That we have no authen-

tick Account of the lower Plains, being become

dry and habitable, even in Regions more eleva-

ted than many others, I mean about the mid-

dle Parts of our Continent, till the Building of

Babel, the Confusion of Languages, and the

Dispersion of the Nations over the Earth; none

of which happen'd before the Second Century

from

Gen. 10.
25. & 11.
1, 2.

Corol. 2.
post Solut.
61. Mr.
Ray's Phy-
sico The-
olgg. Dis-
courses,
P. 28, 29.
2d Edit.

from the Deluge, in the days of *Peleg*. And then as to the present *Phænomena* of Nature, I think they determin the Question before us, and sufficiently demonstrate the longer abode of the Waters of the Deluge upon the Earth than is commonly allow'd. For as many Maritime Countreys (which I have already observ'd, and others have noted the same) do by their remarkably even and smooth Surface, shew they have been made so in length of time, by the motion of the Sea, which now lays the Sands in the same manner : So does the Consideration of the Nature and Position of the *Strata* of the Earth in some places now fully confirm the same Observation. Near my Habitation, at present, upon the Sea-coast, there is a pretty high and remarkable Cliff, at the least twenty Foot above the Surface of the Ocean adjoining : and yet 'tis to the very top *Stratum* of all almost as evidently the Product of the Waters, laying Heaps, *Strata*, and Beds of *Sand* and *Chingle* ; as that very Shore on which we stand, and which is daily made and remov'd by the Tides and Waves of the present Ocean. And as I do not doubt from the always equal height of the Ocean every-where, that 'tis frequently thus in other places also ; so this is, I think, a plain Evidence that the Ocean has been at least 20 Foot higher than 'tis now : and that for a long time together, sufficient I mean to heap up such mighty Beds of *Sand* and *Chingle* as the present observation does require. Which of it self is at once a demonstration that all the lower Regions near the Sea have formerly been drown'd, and layn under water : And at the same time does fully confirm that length of time which I assert

was

was taken up in the intire subsidence of the Waters of the Deluge.

In this place I cannot but propose a Conjecture I have for some time had in my mind about the Peopling of *China*; which I think may deserve to be consider'd; and 'tis This. That the *Chinese* are the Offspring of *Noah* himself after the Flood, and not deriv'd from any of his other posterity *Shem*, *Ham*, or *Japhet*, as the inhabitants of the rest of the World are. This Conjecture depends on the following Reasons. (1.) The account of the Posterity of *Shem*, *Ham*, and *Japhet*, and of their dispersion, gives no hint of any that went so far East as *China*, as I think is plain from the best explications of the 10th of *Genesis*, where that matter is chiefly treated of. (2.) Since the dispersion of the Posterity of *Shem*, *Ham*, and *Japhet* appears to have begun about *Babylon*, a Countrey so remote as *China* could not be so soon reach'd and peopled as the prodigious Numbers of its Inhabitants at present shew it to have been. The nearest regions must have been first and most fully peopled; and the remoter not till Men were increas'd sufficiently to require new Habitations; and accordingly it has happen'd in the Countries of *Europe*, *Africa*, and the Western parts of *Asia*; to which I suppose the dispersion begun at *Babel* is confin'd. But this is a sufficient proof that so very large and prodigiously populous a Country as *China* could not be of so late an Original, as it must be in case the *Chinese* are deriv'd from this dispersion. (3.) The Sacred History soon after the Flood confines it self within the then known World; (which, I think, did not include *China*,

Scholium
post sect. 2.
Hypoth. 8.

no

no more than *America*, and which is stil'd the *whole*
 Gen. 9. 19. *Earth* very often in Scripture,) and at the same
 time says not a word of the great Father of
 the whole Race of Mankind, *Noah*: (excepting
 the number of years he Liv'd.) Now this is, I
 think, a kind of intimation that *Noah* had no
 share in the Actions related in the Sacred Histo-
 ry: and so by a fair consequence was probably
 plac'd in *China*, a region out of the compass of
 the then known World. (4.) 'Tis otherwise
 strange, that whereas *Caucasus*, the resting-place
 of the Ark, was so near the middle of our Con-
 tinent, no footsteps should remain of any Co-
 lonies sent Eastward; but all Mankind should
 take one course, and place themselves in the
 Western Regions alone: and this at the same
 time, that no reason can be given why the We-
 stern Countreys should be more inviting to them
 than the Eastern, since the latter certainly have
 been as valuable and pleasant to the past and
 present Ages, as the former. (5.) The *Chinese*
 Language and Writing are so intirely different
 from those with us which the confusion at *Babel*
 introduc'd, and are at so vast a distance from them,
 that I think they cannot well be deriv'd from
 thence, nor from any of those Patriarchs whose
 Posterity was there divided into the several
 Parts of the World. All our Languages consist
 of Words and Syllables made by a few Letters:
 which is wholly different from the way of ex-
 pressing intire Sounds, and of varying the sense
 by Tones or Accents among the *Chinese*. All
 which persuade me, that their Original is dif-
 ferent from Ours: And that as we are the Off-
 spring of *Shem*, *Ham*, and *Japhet*, whose Sons
 were scattered from *Babel*, so are they of *Noah*
 who

who was no way interest'd in that Dispersion, or in those Languages which are deriv'd therefrom. (6.) The learned Sciences seem to have been anciently much better known in *China* than in these Parts of the World: Their Government and Constitution much firmer, and more lasting than Ours: Their most Ancient Histories more Authentick and Certain than Ours; (excepting those of more than humane Original.) All which things make one ready to imagin, that as 'tis probable *Noah* might be much wiser and learneder than any of his Sons; so all those Settlements, Laws, and Traditions, which are deriv'd from him, are remarkable Effects and Testimonies of the same: and therefore that in *China* (where these Effects and Testimonies chiefly appear) all those Prerogatives are owing to *Noah*, their Original Founder, and to no other. (7.) There are some Reasons to believe that the *Chinese* mean no other by their first Monarch *Fohi*, than *Noah* himself: For as the beginning of their History, with the Reign of *Fohi*, will, if their old years were Lunar, fall, even from the Hebrew Verity, about the second Century of *Noah*'s Life; (as if they were Solar, they will fall about the time of his Birth:) So what their History of King *Fohi* mentions about his Sacrificing, and his Name of *Sacrificer* given him from thence, seems plainly to refer to the Sacred History of *Noah*, and of his *Sacrifice* after the Flood. From all which I think 'tis evident, that we have good grounds to believe the *Chinese* the Off-spring of *Noah*, by his Children born after the Deluge: and that from this difference of Original proceeds all that difference in other things, which is so remarkable, if compar'd

par'd with the rest of the World, in that Ancient
Numerous, and Learned Nation.

Pag. 33. Let the Testimony out of *Plutarch* be thus inserted.

Ἐμπεδοκλῆς, ὅτι ἐγένετο ὅλ' Ἀνθρώπων γένος ἐκ τῆς
γῆς, παύτην γένεσιν πρὸ μῆκε τοῦ χρόνου, διὰ τὸ βε-
βηκέναι τὸ ἥλιον τὴν ἡμέραν, ὅποσιν νῦν ὄν ἡ δαίμωνος.
'Twas the Doctrine of *Empedocles*, that when
Mankind sprang Originally from the Earth, the
length of the Day, by reason of the slowness of
the Sun's course, was equal to ten of our present
Months.

FINIS.

ERRATA.

Pag. 6. Line 28. read *Internal heat*.

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| 7. | 22. read <i>the</i> . |
| 16. | 29. read <i>pervious</i> . |
| 17. | 16. read <i>Waters</i> . |
| | 25. read <i>to the raising</i> . |
| 18. | 10, 11. read <i>place, in Mr. Keill's Opinion, besides</i> . |
| 24. | 5. dele <i>for</i> . |
| 26. | 11. read <i>Shells</i> . |
| 29. | 11. read <i>this</i> . |
| 31. | 24. dele <i>of</i> . |
| 34. | 19, 20. read <i>Into its Tail, unless it were very short</i> . |
| 36. | 8. dele <i>and</i> . |
| | 25. read <i>tails</i> . |

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